TRANSPORT & MASS TRANSIT DEPARTMENT

GOVERNMENT OF SINDH

ADP SCHEME # 3303 (2022-23)

PC-1

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS IN KARACHI

Liaquatabad 10 Number

Nazimabad Eid Gah

Tariq Road-Bahadurabad

Arts Council

(PC-1 Cost- PKR 199.292 Million)

September 2022

SINDH MASS TRANSIT AUTHORITY

GOVERNMENT OF SINDH

1. Name of the Project	UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS IN KARACHI
2. Locations	**1. Liaquatabad 10 Number, Karachi (Central)** **2. Nazimabad Eid Gah, Karachi (Central)** **3. Tariq Road-Bahadurabad, Karachi (East)** **4. Arts Council, Karachi (South)**
Provide name of District/Province	Karachi, Sindh.
Attach a map of area. Clearly indicating the project location.	**Annexure A** Location Map
3. Authorities Responsible For	
I. Sponsoring	Transport & Mass Transit Department (TMTD), Government of Sindh
II. Execution	Sindh Mass Transit Authority (SMTA)
III. Operation & Maintenance	Karachi Development Authority (KDA)
IV. Concerned Federal Ministry	N/A
4. Plan provision	
If the project is included in the medium term/five-year plan, specify actual allocation.	Rs. 50.0 million is allocated in ADP budget under scheme Sr.# 3303 for the year 2022- 23 out of Rs. 200.0 million estimated budget for the project.
If not included in the current plan, what warrants its inclusion and how is it now proposed to be accommodated.	Not Applicable
If the project is proposed to be financed out of block provision, indicate	Not Applicable
5. Project Objective and its Relationship with:	
5.1. The objective of the sector / sub sector as indicated in the medium term/five-year plan be reproduced. Indicate objective of the project and develop a linkage	The main objective of the project is to regularize traffic flow in all direction through signalization, based on international standards. Further objectives of the project are 1. Reduce congestion at the intersections 2. Reduce No of accidents

between the proposed project and sartorial.	3. Decrease travel time and cost of road users 4. Increasing the efficiency of intersection and hence facilitating the Traffic police also in traffic management. 5. Reducing the emission due to traffic congestion
5.2. In case of revised project. Indicate objectives of the Project, if different from PC-1	N/A
6. Description, Justification and Technical Parameters	**Intersections** are a critical aspect of street design as the point where motorist, bicycle, and pedestrian movements converge. Successful intersection design addresses all mobility and safety goals as well as opportunities to enhance the public realm. **Visibility / Sight Distance:** are parameters central to the inherent safety of intersections, driveways, and other potential conflict points. Intersection design should facilitate eye contact between street users, ensuring that motorists, bicyclists, pedestrians, and transit vehicles intuitively read intersections as shared spaces. Visibility can be achieved through a variety of design strategies, including intersection "daylighting," design for low-speed intersection approaches, and the addition of traffic controls that remove trees or amenities that impede standard approach, departure, and height sight distances. Sight line standards for intersections should be determined using target speeds, rather than 85th-percentile design speeds. This prevents wide setbacks and designs that increase speeds and endanger pedestrians. **Pedestrian Safety Islands:** reduces the exposure time experienced by a pedestrian in the intersection. While safety islands may be used on both wide and narrow streets, they are generally applied at loca-tions where speeds and volumes make crossings prohibitive, or where three or more lanes of traffic make pedestrians feel exposed or unsafe in the intersection. Pedestrian safety islands limit pedestrian exposure in the intersection. They are recommended where a pedestrian must cross three lanes of traffic in one direction (on a 1--way or a 2--way street), but may be implemented at smaller cross--sections where space permits. **Crosswalks / Crossings:** As traffic speeds and volumes increase, so too does the level of protection desired by pedestrians. Where vehicle speeds and volumes are high and pedestrian access is expected at regular intervals, signalized crossings preserve a safe walking environment. Where anticipated pedestrian traffic is low or intermittent, or where vehicle volumes are lower and pedestrian crossings shorter, designers may consider the use of unsignalized crossing treatments such as medians, hybrid or rapid flash beacons, or raised crossings. On streets with low volume (<3000 ADT), low speeds (<20 mph), and few lanes (1–2), marked crosswalks are not always necessary at the intersections. At schools, parks, plazas, senior centers, transit stops, hospitals, campuses, and major public buildings, marked crosswalks may be beneficial regardless of traffic conditions. All legs of signalized intersections must have marked crosswalks unless pedestrians are prohibited from the roadway or section thereof, or if there is physically no pedestrian access on either corner and no likelihood that access can be provided. Pedestrians are unlikely to comply with a 3-stage crossing and may place themselves in a dangerous situation as a result. **Corner Radii:** Corner radii directly impact vehicle turning speeds and pedestrian crossing distances. Minimizing the size of a corner radius is critical to creating compact intersections with safe turning speeds. The size of the corner relates directly to the length of the crosswalk. Longer crosswalks take more time to cross, increasing pedestrian exposure risk and diminishing safety. The distinction between the corner radius and the

effective turning radius is crucial and often overlooked. The corner radius may be a simple or a complex curve and depends primarily on the presence of on-street parking, bike lanes, the number of travel lanes, medians, and traffic control devices. Designers often determine corner radii based on the intersection geometry only and overlook the effective radius. As a result, drivers making a turn on a green signal have little incentive to turn into the nearest receiving lane and routinely turn as wide as possible to maintain travel speeds.

Traffic Signals: Equally important to the allocation of space, in the form of street cross-sections and geometry, is the allocation of time, performed by traffic signals. Space and time in combination govern how streets operate and how well they provide mobility, safety, and public space. Signal timing is an essential tool, not just for the movement of traffic, but also for a safer environment that supports walking, bicycling, public transportation, and economic vitality.

Project Description

The project scope includes:

1. Survey and Design of Intersection for optimum traffic flow
2. Construction of Traffic Islands for channelization of traffic
3. Pavement Marking and Traffic Signage
4. Signalization In Karachi at

i) Liaquatabad No.10 (Central District) **ii)** Nazimabad Eid Gah (Central District) **iii)** Tariq Road – Shaheed Millat road (East District) **iv)** Arts Council (South Distrcit)

Rationale / Reason for choosing the above locations is as follows:

Liaquatabad No. 10

Liaquat No. 10 is a major Road junction in District Central, Karachi. The roads intersecting on this junction are Sir Shah Suleman Road (Signal free corridor-1) and SharaePakistan. Category of both intersecting roads is primary arterial. Therefore the junction is considered as a major junction in Karachi.

Existing junction has a flyover along Sharah-e-Pakistan while there is an underpass along Sir Shah Suleman Road. The atgrade situation of junction is very poor with no traffic control system, no proper road design geometry and no safe crossing for pedestrians and cyclists. The intersection is also serving several existing public transport routes. Considering the poor at-grade configuration of this critical junction, It is required to improve this junction on priority basis.

Nazimabad Eid Gah / PetrolPump:

Nazimabad Eidgah is another major Road junction in District Central, Karachi. The roads intersecting on this junction are Sir Shah Suleman Road (Signal free corridor-1) and Nawab Siddique Ali khan road (continuation of Sher Shah Suri road) . Category of both intersecting roads is primary arterial. Therefore the junction is considered as a major junction in Karachi. Traffic from district central accessing SITE industrial use this junction.

Existing junction has a flyover along Nawab Siddique Ali khan Road while there is an underpass along Sir Shah Suleman Road. The at grade situation of junction is very poor with substandard roundabout, no proper road design geometry and no safe crossing for pedestrians and cyclists. The intersection is also serving several existing public transport

routes. Considering the poor atgrade configuration of this critical junction, It is required to improve this junction on priority basis.

Shaheed-e-Millat/Tariq road junction:

Shaheed e Millat/Tariq road is another major Road junction in East, Karachi. The roads intersecting on this junction are Shaeed-e-Millat road and Tariq road (continuation of Sher Shah Suri road) . Road hierarchy of Shaheed e millat road is arterial while tariq road is considered as collector road. This is considered as a critical junction in District East, Karachi. Traffic from rest of Karachi access Tariq road via this junction. Existing junction has an underpass along Shaheed e millat Road. The junction is currently facing long delays due to poor geometry of intersection. The service roads are directly approaching the main junction causing further delays that need to be closed to improve travel time while there is a need to improve pedestrians and cyclists accessibility and safety at the junction.The signal timing is currently following 4 phase cycle, this is also required to be Reduce to 3 phase as per Single Point Urban Interchange(SPUI) concept.
The intersection is also serving several existing public transport routes. Considering the long delays at this critical junction, It is required to improve this junction on priority basis.

Arts Council Roundabout:

Arts Council Roundabout junction is intersection of 6 roads, namely 1-M.R Kayani road, 2-Strachan Road, 3-Court Road, 4-Sarwar Shaheed Road, 5-Din Mohammad Wafai Rd and 6-Artillery Station Road. The junction is surrounded by several landmark and busy places such as Sindh Assembly, Sindh Highcourt, Sindh Secretariat, Arts Council of Pakistan and Cantonment Board Karachi. All the roads are linking several high profile places therefore, none of the road can be closed here making it difficult to operate the junction at acceptable LOS.
Also there is no provision for safe pedestrian crossing at this junction.
Idea of signalization is also explored at this junction but it won't be as effective because of long signal cycle time due 6 approach roads at junction. Also the ROW of all these roads is narrow therefore queue length will be significantly long.
The improvement at the junction will be to improve the geometry of Roundabout central island and approaches considering appropriate deflection angle and turning radius at approaches. The pedestrian connectivity at the roundabout will also be improved.

7. Capital Cost Estimates

Detailed break-up is provided in Annexure-B

SUMMARY OF COST

S #	Description	Amount (Rs.)
	Part A: Construction Costs	
1	Carriageway	87,720,017
2	Medians, footpath, Island	29,901,574
3	Ancillary Works	48,527,590
4	Provision for ITS	5,000,000
5	Utility Crossing ducts and Inspection Chamber	3,000,000
6	Re-location of Electric Poles	3,000,000
	Sub Total (A)	**177,149,181**
	Part B: Other Costs	
i	Add Contingencies (1.5% of A)	2,657,238
ii	Add SRB (5% of A)	8,857,459
iii	Third Party Monitoring (1% of A)	1,771,492
iv	Add for Detailed Design and Preparation of Tender Documents (2% of A)	3,542,984
v	Add for Construction Supervision Consultancy Services (3% of A)	5,314,475
	Sub Total (B)	**22,143,648**

	Total Project Cost (A+B) — **199,292,829** *NOTES: (i). Rates are based on Government of Sindh Composite Schedule of Rates 2012.* *(ii). For items not available in Sindh CSR 2012, NHA CSR 2022 is followed.*
7.1. Date of Estimation	September 2022
7.2. Basis of Cost Estimate	Rates are Based on Government of Sindh Composite Schedule of Rates 2012 with a premium of 20% (ii). For Items not available in Sindh CSR 2012, NHA CSR 2022 is followed
7.3. Year-wise estimates	**Years-wise Allocation (PKR)** **2022 - 2023**: 50,000,000 **2023 - 2024**: 150,000,000
8. Annual operating and maintenance cost after completion of the Project	Annual funds need to be provided for maintenance periodic maintenance and repair of Signals, damages of traffic islands and refurbishment of pavement marking & traffic signs. A tentative amount of PKR 1,000,000 should be budgeted annually. The above mentioned budget is proposed to be included for the KDA as the maintenance responsibility is that of KDA (Local Government)
9. Demand and solve analysis	Not Applicable
10. Financial plan and mode of financing	Not Applicable 100 % owned by Government of Sindh
11. Project benefits and analysis **Financial/Economic**	**Financial Benefits:** N/A (the necessary intervention is purely
Social benefits with indicators	**Social Benefits:** Improved Public Service, safety and environmental benefits
Employment generation (direct and indirect)	N/A
Environmental impact Assessment	**Environmental Impacts:** no such impacts are anticipated, rather smooth flow of traffic will reduce air and noise pollution
Impact of delays on project cost and viability	**Delays Impact:** With the prevailing pattern of the increase in the cost of the construction material and that of the labor wages of the project cost, if the implementation of the project is delayed, shall increase, thereby, having an undue negative impact on the viability of the project.

12. Implementation schedule	**Phase I: Year 1** a. Preparation of Scope of Works and procurement of Design consultant services for surveys, design, preparation of cost estimates and BOQs and Construction Drawings b. Procurement process and selection of Construction Contractor c. Start of construction **Phase2: Year2** **a.** Remaining Construction and handing over site to the client **Timeline** for the project completion is expected to be 24 months.
13. Management structure and manpower requirements including specialized skills during construction and operational phases	Hiring of Design and Supervision Consultants will be carried out by SMTA. Similarly procurement of Contractor will be carried out by SMTA as per rules and regulations of SPPRA.
14. Additional projects/decisions required to maximize socio-economic benefits from the proposed project	Not Applicable
15. Certified that the project proposal has been prepared on the basis of instructions provided by the Planning Commission for the preparation of PC-I for Infrastructure Sector Projects:	It is certified that the project proposal has been prepared on the basis of instructions provided by the Planning Commission for the preparation of PC-I for Infrastructure Sector Project.

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS IN KARACHI

Prepared by: _____

Assistant Director Infrastructure, SMTA

_____

Deputy Director Infrastructure, SMTA

Checked by: _____

Consultant Planning & Coordination, TMTD

Director Infrastructure & Planning, SMTA

Forwarded by:

Managing Director, Sindh Mass Transit Authority

Approved by:

Secretary (Transport & Mass Transit Department) GoS

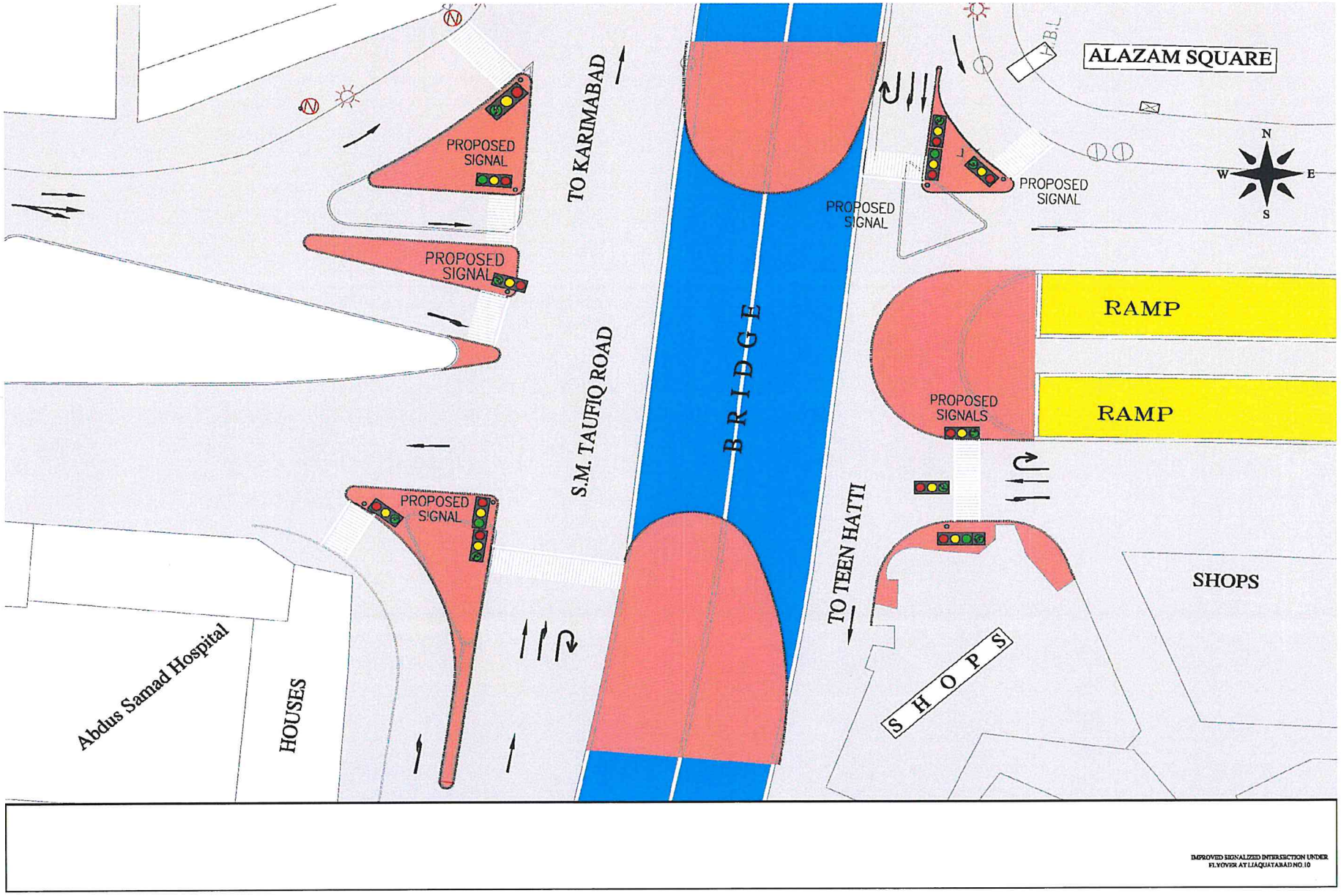
UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS IN KARACHI

(ADP Scheme # 3303) in 2022-23

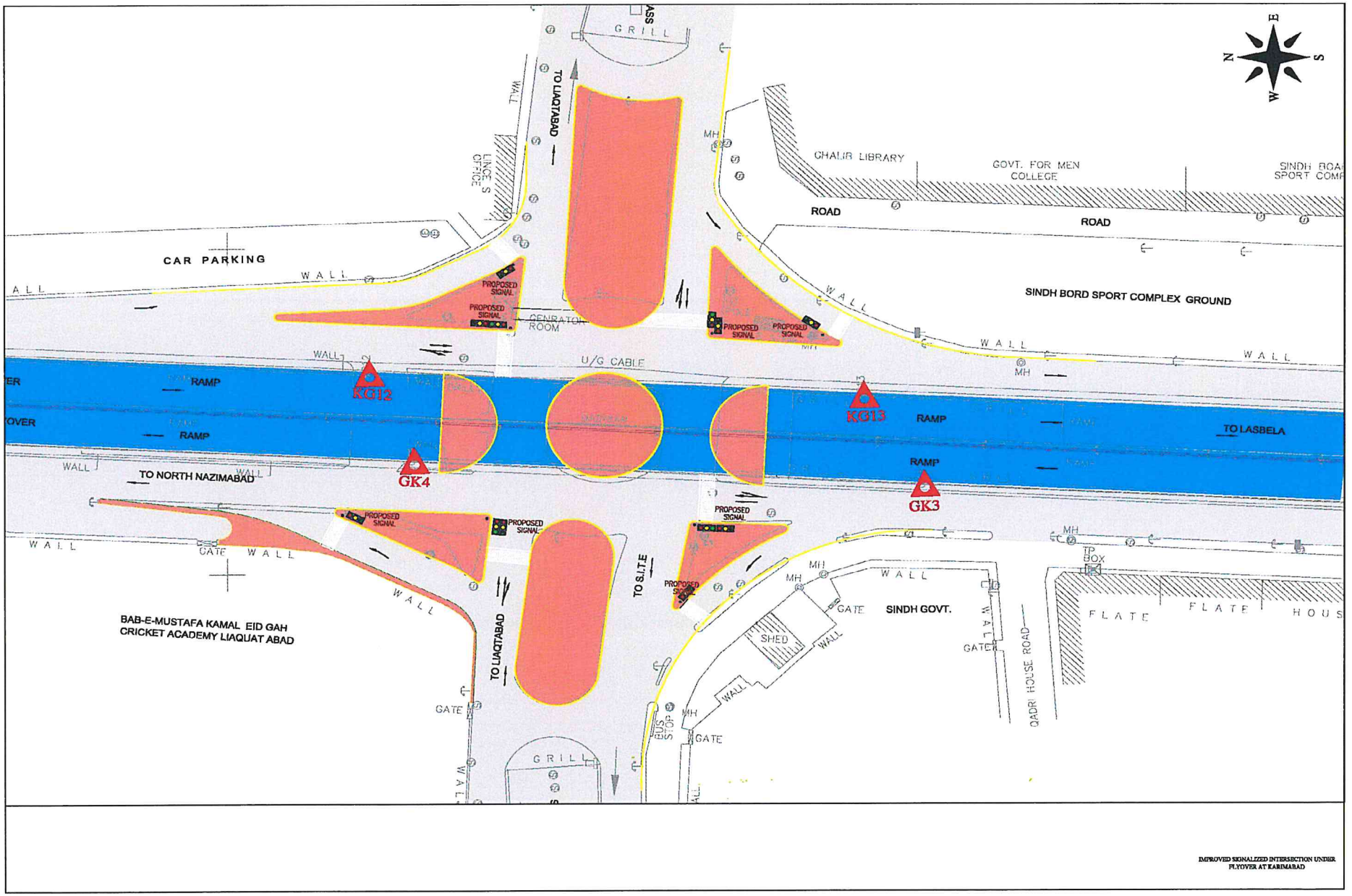
Annexure-A

LOCATION PLANS

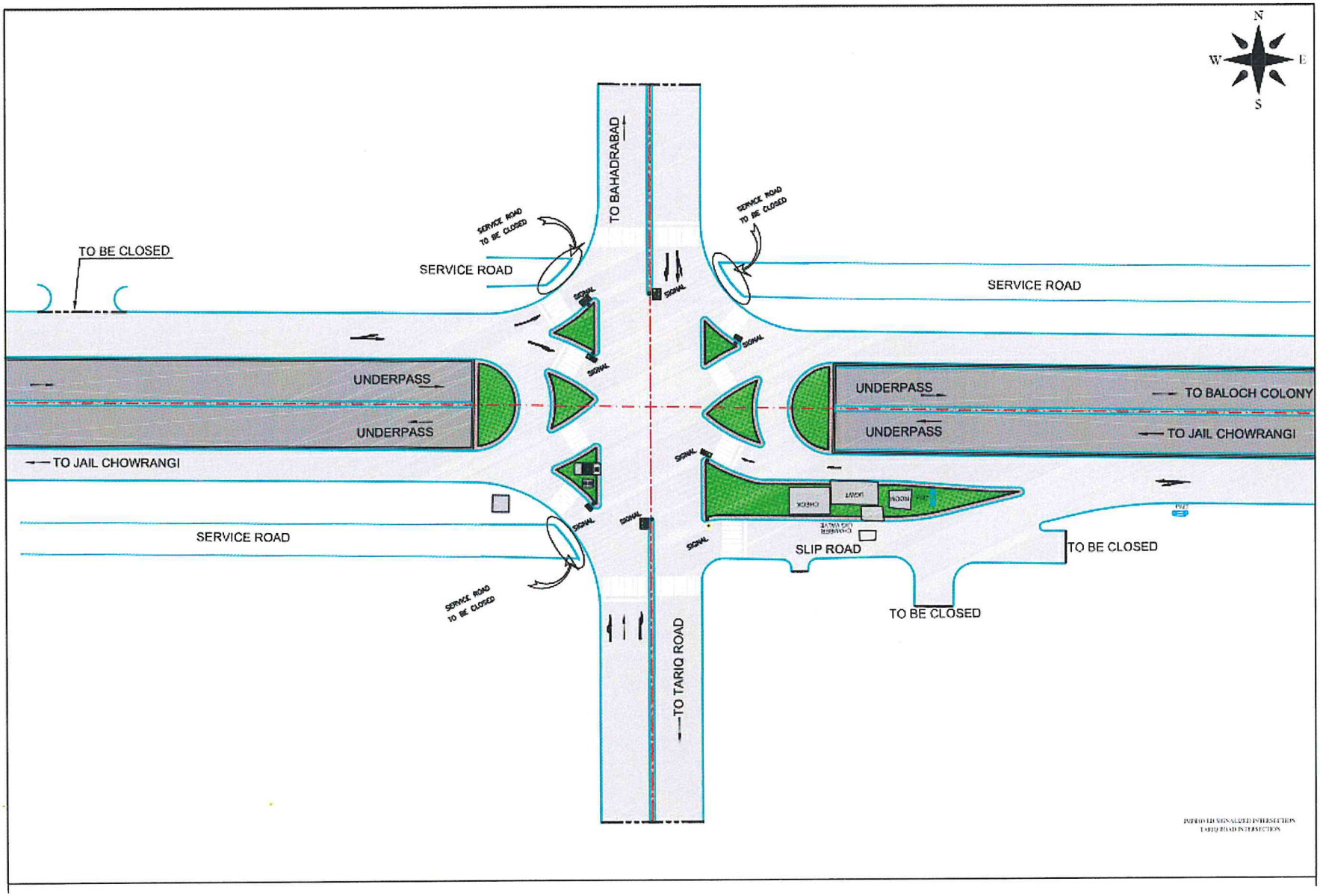
1- Laquitabad 10 Number



2- Nazimabad EidGah



3-Tariq Road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TO TARIQ ROAD

4-Arts Council

Annexure-B

COST ESTIMATES

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS IN KARACHI

SUMMARY OF COSTS

Sr.	DESCRIPTION	AMOUNT (Rs.)
	Part A : Construction Costs	
1	CARRIAGEWAY	87,720,017
2	MEDIAN, FOOTPATH, ISLANDS	29,901,574
3	ANCILLARY WORKS	48,527,590
4	PROVISION FOR ITS	5,000,000
5	UTILITY CROSSING DUCTS AND INSPECTION CHAMBER	3,000,000
6	RE-LOCATION OF ELECTRIC POLES	3,000,000
	SUB- TOTAL (A)	**177,149,181**
	Part B : Other Costs	
i	Add Contigencies (1.5% of A)	2,657,238
ii	Add SRB (5% of A)	8,857,459
iii	Third Party Monitoring (1% of A)	1,771,492
iv	Add for Detailed Design and Preparation of Tender Documents (2% of A)	3,542,984
v	Add for Contruction supervision Consultancy Services (3% of A)	5,314,475
	SUB- TOTAL (B)	**22,143,648**
	TOTAL PROJECT COST (A+B)	**199,292,829**

NOTES: (i). Rates are Based on Government of Sindh Composite Schedule of Rates 2012.
(ii). For Items not available in Sindh CSR 2012, NHA CSR 2022 is followed.

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS
TARIQ ROAD-BAHADURABAD

SUMMARY OF COSTS

BILL No.	DESCRIPTION	AMOUNT (Rs.)
1	CARRIAGEWAY	18,835,038
2	MEDIAN, FOOTPATH, ISLANDS	1,876,099
3	ANCILLARY WORKS	12,938,174
	TOTAL CONSTRUCTION COST	**33,649,311**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT TARIQ ROAD-BAHADURABAD

COST ESTIMATES

BILL NO. 1 : CARRIAGEWAY

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
1	Cutting and removing trees within distances of 100 ft: *2012, Highway, Vol-iii, Part vi, Mis. Serial 4 a &b)*						
	(a) Upto 2.0ft : Girth.	Each	5	480.98	96.20	577.18	2,886
	(b) 2.50 Ft. to 6.0 Ft. Girth.	Each	3	940.783	188.16	1,128.94	3,387
2	Dismantling of existing asphalt concrete road including base, sub-base and disposal of dismantled materials to designated placed. *2012, Highway, Vol-iii, Part vi, Mis. Serial 11)*	Cu.M	10	273.45	54.69	328.14	3,281
3	Earth work embamkment from borrow pits including laying in 6" layers, clod breaking ramming dressing complete, lead upto 100 ft: lift upto 5 ft: (In ordinary soil). *2012, Highway, Vol-iii, Part vi, Serial 5)*	Cu.M	25	78.00	15.60	93.60	2,340
4	Earth work compaction by Sheep Foot Roller and Power Roller with optimum moisture content. For 95-100% modified AASHO density. *(CSR 2012, Highway, Vol-iii, Part vi, Serial 7a)*	Sq.M	9,000	140.41	28.08	168.49	1,516,410
5	Dismantling of existing asphalt concrete road including base, sub-base and disposal of dismantled materials to designated placed. *(CSR 2012, Highway, Vol-iii, Part vi, Serial Mis. 11)*	Sq.M	9,000	273.45	54.69	328.14	2,953,260
6	Scarification of Existing Road Pavement *(NHA CSR 2022, Karachi East, Serial 302a)*	Sq.M	9,000	81.35			732,150
7	Granular Subbase *(NHA CSR 2022, Karachi East, Serial 201)*	Cu.M	270	1,909.05			515,444
8	Aggregate Base Course (With Grader) *(NHA CSR 2022, Karachi East, Serial 202 ii)*	Cu.M	360	2,402.88			865,037
9	Applying priming coat or tack coat with approved binder at the required rate cluding cleaning the road surface thoroughly, heating to the required temperature and spraying the binder with pressure as directed etc, complte. *(NHA CSR 2022, Karachi East, Serial 302a)*	Sq.m	9,000	135.78			1,222,020
10	ASPHALTIC BASE COURSE PLANT MIX (CLASS "B") Providing and laying Plant mixed Asphalt Concrete Binder Course compacted thickness 3 inches (75mm thick) as per approved job mix formula using crush aggregate from approved sources. Using asphalt of grade 80/100 during laying temperature not less than 140C compacted by steel wheel & PTR roller. The procedure of laying binder course material & methodology shall fully comply with AASHTO and as directed by Engineer Incharge. Minimum bitumen content should be 3.5% binder course shall be spreading using paver machine.Rolling & Finishing to design proper grade line level and camber etc: (Machinery with POLs cost of material carriage). *(NHA CSR 2022, Karachi East, Serial 203b)*	Cu.M	102	19,053.41			1,943,448
11	2" (50 mm) Thick Asphalt Concrete Wearing Course Plant Mix.Laying to Proper line and grade plant mixed Asphalt concrete paver finished (Hydraulic / Electronic control) Prepared to specified fomula according to job mix formula approved by Engineer incharge including rolling and finishing to Properline, grade level and camber etc: (Machinery with POLs cost of material carriage). *(NHA CSR 2022, Karachi East, Serial 305b)*	Cu.M	450	20,193.93			9,087,269
TOTAL BILL NO. 1 : CARRIAGEWAY							**18,835,038**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT TARIQ ROAD-BAHADURABAD

COST ESTIMATES

BILL NO. 2 : MEDIAN, FOOTPATH, ISLANDS

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
12	Providing & fixing cement paving blocks flooring having size of 197 x 97 x 60 (mm) of city /quddra / cobble shape with natural colours , having strength b/w 5000 PSI to 8500 PSI i/c filling the joints with hill sand and laying in specified manner/ pattern and design etc complete. *(CSR 2012, General, Vol-iii, Part II, Chap. 8, Pg 49, Serial 71)*	Sq.m	350	2,149.53	429.91	2,579.44	902,804
13	Cement concrete plain Class B including placing compacting, finishing and curing, comlete (including screening and washing at stone aggregate i/c shuttering.(for Edge Block) *(NHA CSR 2022, Karachi East, Serial 401b)*	Cu.m	13	11,073.55			143,956
14	Dismantling of Structures & Obstructions *(NHA CSR 2022, Karachi East, Serial 510)*	Cu.m	27	1,969.13			53,167
15	Providing & fixing Precast Edge Block (Kerb Block) 3750 PSI Industrial Made Size 6 inches thick x 12 inches long x 18 inches high including the cost of Cartage, excavation, form Work for haunching, 1450 PSI lean concrete, 2250 PSI concrete for haunching, 1:4 cement sand mortor. *(NHA CSR 2022, Karachi East, Serial 601di)*	M	298	1529.83			455,889
16	Providing and laying fairfaced reinforced cement concrete new jersey barrier having 3000 PSI compressive cylindrical strength Concrete (Ready mixed concrete) (area 0.261 Sq.M) as per drawing including the cost of excavation, formwork, lean concrete 1450 PSI compressive cylindrical strength etc. complete in all respect. (excluding the cost steel reinforcement). *(NHA CSR 2022, Karachi East, Serial 601diii)*	M	25	12,811.31			320,283
TOTAL BILL NO. 2 : MEDIAN, FOOTPATH, ISLANDS							**1,876,099**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT TARIQ ROAD-BAHADURABAD

COST ESTIMATES

BILL NO. 3 : ANCILLARY WORKS

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
17	Traffic Road Sign						
a	Traffic Sign Cat 1i (equilateral Triangle) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 ai)*	Each	8	21,453.30			171,626
b	Traffic Sign Cat 2i (Circular) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 bi)*	Each	3	27,000.89			81,003
c	Traffic Sign Cat 3Ai (Rectangular) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 ci)*	Each	2	34,076.09			68,152
d	Traffic Road Sign Category 3c (Up To 3 Sq.M) Sign Board In High Intensity Reflective Sheet Laminated on 1.8 Mm Thick G.I Sheet With G.I Pipe Dia 4" and Thickness 8 Guage *(NHA CSR 2022, Karachi East, Serial 607 ei)*	Sq.m	8	51,862.13			414,897
18	Pavement Marking In Reflective TP Paint for Lines of 15 cm Width *(NHA CSR 2022, Karachi East, Serial 608 h2)*						
	1) Yellow Color	M	1,650	183.46			302,709
	2) White Colour	M	220	183.46			40,361
	3) Chevron	Sq.m	110	1,223.10			134,541
	4) Zebra Crossing	Sq.m	383	1,223.10			468,447
19	Pavement Marking In Reflective TP. Paint for 4 M Arrows *(NHA CSR 2022, Karachi East, Serial 608 j2)*	Each	25	1,947.48			48,687
20	Reflectorized Plastic Pavement Stud (Raised Profile Type - Double) 100 Mm X100 Mm *(NHA CSR 2022, Karachi East, Serial 609 di)*	Each	323	430.75			139,132
21	Sodding (Incl 2 Months Maintenance) Ploughing Dacca grass with manure as per approved gradient in/c watering and maintaining for two months complete.(exculding the cost of sweet earth). *(NHA CSR 2022, Karachi East, Serial 613 b)*	Sq.m	725	169.44			122,844
SP-31	Raising of Main Hole/Chamber to Req. Level Up To Max 25 Cm	Each	10	13,227.00			132,270
SP-613d	Filling watering & ramming sweet earth excavated form outside i/c all lead and lift. (Complete in all respect)	Cu.M	218	1,976.72			430,925
SP-231	Supply of PLC based Pelican Controller (Siemens, Delta, Omron, Mitsubishi),pedestrian and traffic Control etc. programming as per site requirement,operating on 220V-50HZ, All enclosed in weather proof steel Cabinet with Lock & Key arrangements, cable glands, gas kit, 200mm Traffic Light, Poly Carbonate Housing Color Black, LED optical System(IP65 Module-Central Light Source) High Flux with Red, Amber,(IP65 Module-Central Light Source) High Flux with Red, Amber,Green modules with homogenous light distribution, phantom light reduction,color stability, operation voltages 180V-240V (UK, USA, Australia or Italy)visor and Mounting brackets etc. complete in all respects. Installation of Pedestrian Light LED, 2 Aspect, 300mm dia, 400 CD, Poly Carbonate,(Person Figure), 220V/ 50 Hz, Supply / Installation of Pedestrian Push Button (Arrow Sign) Single Standard Poles with 15 feet high GI Pipe (ILL/Jamal/Bashir) 4" Dia complete with base plate Stiffeners and junction box Construction of PCC foundation for traffic signal Standard Poles with 1 meter long J-bolt as per drawing. Concrete Base 1:2:4 (1 cement, 2 sand, 4 crushed bujri) Providing, laying, testing, commissioning of multicore PVC insulated flexible PVC sheathed copper conductor cables (new age, fast cable, Pakistan cable, pioneer Cable, BICC (England), Siemens) with wiring of each crossing as per site requirement (1.5mm 4 core), Installation charges for signal poles, traffic lights, controller, excavation for cabling pipe and wire pulling i/c transportation of material, engineers, technician and labor, tools, programming, wiring, testing and commissioning costs complete job in all respects,i/c Sign Board for Pedestrian Crossing, complete in all respects.	Set	9	1,153,620.00			10,382,580
TOTAL BILL NO. 3 : ANCILLARY WORKS							**12,938,174**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT NAZIMABAD EID GAH

SUMMARY OF COSTS

BILL No.	DESCRIPTION	AMOUNT (Rs.)
	Part A	
1	CARRIAGEWAY	26,995,550
2	MEDIAN, FOOTPATH, ISLANDS	13,410,268
3	ANCILLARY WORKS	15,991,757
	SUB- TOTAL (A) - CONSTRUCTION COST	**56,397,575**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT NAZIMABAD EID GAH

COST ESTIMATES

BILL NO. 1 : CARRIAGEWAY

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
1	Cutting and removing trees within distances of 100 ft: *2012, Highway, Vol-iii, Part vi, Mis. Serial 4 a &b)*						
	(a) Upto 2.0ft : Girth.	Each	5	480.98	96.20	577.18	2,886
	(b) 2.50 Ft. to 6.0 Ft. Girth.	Each	3	940.783	188.16	1,128.94	3,387
2	Dismantling of existing asphalt concrete road including base, sub-base and disposal of dismantled materials to designated placed. *2012, Highway, Vol-iii, Part vi, Mis. Serial 11)*	Cu.M	10	273.45	54.69	328.14	3,281
3	Earth work embamkment from borrow pits including laying in 6" layers, clod breaking ramming dressing complete, lead upto 100 ft: lift upto 5 ft: (In ordinary soil). *2012, Highway, Vol-iii, Part vi, Serial 5)*	Cu.M	25	78.00	15.60	93.60	2,340
4	Earth work compaction by Sheep Foot Roller and Power Roller with optimum moisture content. For 95-100% modified AASHO density. *(CSR 2012, Highway, Vol-iii, Part vi, Serial 7a)*	Sq.M	12,000	140.41	28.08	168.49	2,021,880
5	Dismantling of existing asphalt concrete road including base, sub-base and disposal of dismantled materials to designated placed. *(CSR 2012, Highway, Vol-iii, Part vi, Serial Mis. 11)*	Sq.M	12,000	273.45	54.69	328.14	3,937,680
6	Scarification of Existing Road Pavement *(NHA CSR 2022, Karachi East, Serial 302a)*	Sq.M	12,000	81.35			976,200
7	Granular Subbase *(NHA CSR 2022, Karachi East, Serial 201)*	Cu.M	270	1,909.05			515,444
8	Aggregate Base Course (With Grader) *(NHA CSR 2022, Karachi East, Serial 202 ii)*	Cu.M	1,200	2,402.88			2,883,456
9	Applying priming coat or tack coat with approved binder at the required rate cluding cleaning the road surface thoroughly, heating to the required temperature and spraying the binder with pressure as directed etc, complte. *(NHA CSR 2022, Karachi East, Serial 302a)*	Sq.m	12,000	135.78			1,629,360
10	ASPHALTIC BASE COURSE PLANT MIX (CLASS "B") Providing and laying Plant mixed Asphalt Concrete Binder Course compacted thickness 3 inches (75mm thick) as per approved job mix formula using crush aggregate from approved sources. Using asphalt of grade 80/100 during laying temperature not less than 140C compacted by steel wheel & PTR roller. The procedure of laying binder course material & methodology shall fully comply with AASHTO and as directed by Engineer Incharge. Minimum bitumen content should be 3.5% binder course shall be spreading using paver machine.Rolling & Finishing to design proper grade line level and camber etc: (Machinery with POLs cost of material carriage). *(NHA CSR 2022, Karachi East, Serial 203b)*	Cu.M	153	19,053.41			2,915,172
11	2" (50 mm) Thick Asphalt Concrete Wearing Course Plant Mix.Laying to Proper line and grade plant mixed Asphalt concrete paver finished (Hydraulic / Electronic control) Prepared to specified fomula according to job mix formula approved by Engineer incharge including rolling and finishing to Properline, grade level and camber etc: (Machinery with POLs cost of material carriage). *(NHA CSR 2022, Karachi East, Serial 305b)*	Cu.M	600	20,193.93			12,116,358
TOTAL BILL NO. 1 : CARRIAGEWAY							**26,995,550**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT NAZIMABAD EID GAH

COST ESTIMATES

BILL NO. 2 : MEDIAN, FOOTPATH, ISLANDS

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
12	Providing & fixing cement paving blocks flooring having size of 197 x 97 x 60 (mm) of city /quddra / cobble shape with natural colours , having strength b/w 5000 PSI to 8500 PSI i/c filling the joints with hill sand and laying in specified manner/ pattern and design etc complete. *(CSR 2012, General, Vol-iii, Part I, Chap. 8, Pg 49, Serial 71)*	Sq.m	4,430	2,149.53	429.91	2,579.44	11,426,919
13	Cement concrete plain Class B including placing compacting, finishing and curing, comlete (including screening and washing at stone aggregate i/c shuttering.(for Edge Block) *(NHA CSR 2022, Karachi East, Serial 401b)*	Cu.m	27	11,073.55			298,986
14	Dismantling of Structures & Obstructions *(NHA CSR 2022, Karachi East, Serial 510)*	Cu.m	78	1,969.13			153,592
15	Providing & fixing Precast Edge Block (Kerb Block) 3750 PSI Industrial Made Size 6 inches thick x 12 inches long x 18 inches high including the cost of Cartage, excavation, form Work for haunching, 1450 PSI lean concrete, 2250 PSI concrete for haunching, 1:4 cement sand mortor. *(NHA CSR 2022, Karachi East, Serial 601di)*	M	875	1,529.83			1,338,601
16	Providing and laying fairfaced reinforced cement concrete new jersey barrier having 3000 PSI compressive cylindrical strength Concrete (Ready mixed concrete) (area 0.261 Sq.M) as per drawing including the cost of excavation, formwork, lean concrete 1450 PSI compressive cylindrical strength etc. complete in all respect. (excluding the cost steel reinforcement). *(NHA CSR 2022, Karachi East, Serial 601diii)*	M	15	12,811.31			192,170
TOTAL BILL NO. 2 : MEDIAN, FOOTPATH, ISLANDS							**13,410,268**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT NAZIMABAD EID GAH

COST ESTIMATES

BILL NO. 3 : ANCILLARY WORKS

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
17	Traffic Road Sign						
a	Traffic Sign Cat 1i (equilateral Triangle) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 ai)*	Each	8	21,453.30			171,626
b	Traffic Sign Cat 2i (Circular) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 bi)*	Each	6	27,000.89			162,005
c	Traffic Sign Cat 3Ai (Rectangular) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 ci)*	Each	5	34,076.09			170,380
d	Traffic Road Sign Category 3c (Up To 3 Sq.M) Sign Board In High Intensity Reflective Sheet Laminated on 1.8 Mm Thick G.I Sheet With G.I Pipe Dia 4" and Thickness 8 Guage *(NHA CSR 2022, Karachi East, Serial 607 ei)*	Sq.m	8	51,862.13			414,897
18	Pavement Marking In Reflective TP Paint for Lines of 15 cm Width *(NHA CSR 2022, Karachi East, Serial 608 h2)*						
	1) Yellow Color	M	110	183.46			20,181
	2) White Colour	M	73	183.46			13,393
	3) Chevron	Sq.m	66	1,223.10			80,725
	4) Zebra Crossing	Sq.m	262	1,223.10			320,452
19	Pavement Marking In Reflective TP. Paint for 4 M Arrows *(NHA CSR 2022, Karachi East, Serial 608 j2)*	Each	28	1,947.48			54,529
20	Reflectorized Plastic Pavement Stud (Raised Profile Type - Double) 100 Mm X100 Mm *(NHA CSR 2022, Karachi East, Serial 609 di)*	Each	49	430.75			21,107
21	Sodding (Incl 2 Months Maintenance) Ploughing Dacca grass with manure as per approved gradient in/c watering and maintaining for two months complete.(exculding the cost of sweet earth). *(NHA CSR 2022, Karachi East, Serial 613 b)*	Sq.m	768	169.44			130,130
SP-31	Raising of Main Hole to Req. Level Up To Max 25 Cm	Each	10	13,227.00			132,270
SP-613d	Filling watering & ramming sweet earth excavated form outside i/c all lead and lift. (Complete in all respect)	Cu.M	231	1,976.72			456,622
SP-231	Supply of PLC based Pelican Controller (Siemens, Delta, Omron, Mitsubishi),pedestrian and traffic Control etc. programming as per site requirement,operating on 220V-50HZ, All enclosed in weather proof steel Cabinet with Lock & Key arrangements, cable glands, gas kit, 200mm Traffic Light, Poly Carbonate Housing Color Black, LED optical System(IP65 Module Central Light Source) High Flux with Red, Amber,(IP65 Module-Central Light Source) High Flux with Red, Amber,Green modules with homogenous light distribution, phantom light reduction,color stability, operation voltages 180V-240V (UK, USA, Australia or Italy)visor and Mounting brackets etc. complete in all respects. Installation of Pedestrian Light LED, 2 Aspect, 300mm dia, 400 CD, Poly Carbonate,(Person Figure), 220V/ 50 Hz, Supply / Installation of Pedestrian Push Button (Arrow Sign) Single Standard Poles with 15 feet high GI Pipe (ILL/Jamal/Bashir) 4" Dia complete with base plate Stiffeners and junction box Construction of PCC foundation for traffic signal Standard Poles with 1 meter long J-bolt as per drawing. Concrete Base 1:2:4 (1 cement, 2 sand, 4 crushed bujri) Providing, laying, testing, commissioning of multicore PVC insulated flexible PVC sheathed copper conductor cables (new age, fast cable, Pakistan cable, pioneer Cable, BICC (England), Siemens) with wiring of each crossing as per site requirement (1.5mm 4 core), Installation charges for signal poles, traffic lights, controller, excavation for cabling pipe and wire pulling i/c transportation of material, engineers, technician and labor, tools, programming, wiring, testing and commissioning costs complete job in all respects,i/c Sign Board for Pedestrian Crossing, complete in all respects.	Set	12	1,153,620.00			13,843,440
TOTAL BILL NO. 3 : ANCILLARY WORKS							**15,991,757**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT LIAQUATABAD 10 NUMBER

SUMMARY OF COSTS

BILL No.	DESCRIPTION	AMOUNT (Rs.)
	Part A	
1	CARRIAGEWAY	24,131,214
2	MEDIAN, FOOTPATH, ISLANDS	8,587,688
3	ANCILLARY WORKS	16,852,254
	SUB- TOTAL (A) - CONSTRUCTION COST	**49,571,156**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT LIAQUATABAD 10 NUMBER

COST ESTIMATES

BILL NO. 1 : CARRIAGEWAY

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
1	Cutting and removing trees within distances of 100 ft: *2012, Highway, Vol-iii, Part vi, Mis. Serial 4 a &b)*						
	(a) Upto 2.0ft : Girth.	Each	5	480.98	96.20	577.18	2,88
	(b) 2.50 Ft. to 6.0 Ft. Girth.	Each	3	940.783	188.16	1,128.94	3,38
2	Dismantling of existing asphalt concrete road including base, sub-base and disposal of dismantled materials to designated placed. *2012, Highway, Vol-iii, Part vi, Mis. Serial 11)*	Cu.M	10	273.45	54.69	328.14	3,28
3	Earth work embamkment from borrow pits including laying in 6" layers, clod breaking ramming dressing complete, lead upto 100 ft: lift upto 5 ft: (In ordinary soil). *2012, Highway, Vol-iii, Part vi, Serial 5)*	Cu.M	25	78.00	15.60	93.60	2,34
4	Earth work compaction by Sheep Foot Roller and Power Roller with optimum moisture content. For 95-100% modified AASHO density. *(CSR 2012, Highway, Vol-iii, Part vi, Serial 7a)*	Sq.M	10,440	140.41	28.08	168.49	1,759,03
5	Dismantling of existing asphalt concrete road including base, sub-base and disposal of dismantled materials to designated placed. *(CSR 2012, Highway, Vol-iii, Part iv, Serial Mis. 11)*	Sq.M	10,440	273.45	54.69	328.14	3,425,78
6	Scarification of Existing Road Pavement *(NHA CSR 2022, Karachi East, Serial 302a)*	Sq.M	10,440	81.35			849,29
7	Granular Subbase *(NHA CSR 2022, Karachi East, Serial 201)*	Cu.M	470	1,909.05			897,25
8	Aggregate Base Course (With Grader) *(NHA CSR 2022, Karachi East, Serial 202 ii)*	Cu.M	627	2,402.88			1,506,60
9	Applying priming coat or tack coat with approved binder at the required rate cluding cleaning the road surface thoroughly, heating to the required temperature and spraying the binder with pressure as directed etc, complte. *(NHA CSR 2022, Karachi East, Serial 302a)*	Sq.m	10,440	135.78			1,417,54
10	ASPHALTIC BASE COURSE PLANT MIX (CLASS "B") Providing and laying Plant mixed Asphalt Concrete Binder Course compacted thickness 3 inches (75mm thick) as per approved job mix formula using crush aggregate from approved sources. Using asphalt of grade 80/100 during laying temperature not less than 140C compacted by steel wheel & PTR roller. The procedure of laying binder course material & methodology shall fully comply with AASHTO and as directed by Engineer Incharge. Minimum bitumen content should be 3.5% binder course shall be spreading using paver machine.Rolling & Finishing to design proper grade line level and camber etc: (Machinery with POLs cost of material carriage). *(NHA CSR 2022, Karachi East, Serial 203b)*	Cu.M	196	19,053.41			3,734,46
11	2" (50 mm) Thick Asphalt Concrete Wearing Course Plant Mix.Laying to Proper line and grade plant mixed Asphalt concrete paver finished (Hydraulic / Electronic control) Prepared to specified fomula according to job mix formula approved by Engineer incharge including rolling and finishing to Properline, grade level and camber etc: (Machinery with POLs cost of material carriage). *(NHA CSR 2022, Karachi East, Serial 305b)*	Cu.M	522	20,193.93			10,541,231
TOTAL BILL NO. 1 : CARRIAGEWAY							**24,131,21**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT LIAQUATABAD 10 NUMBER

COST ESTIMATES

BILL NO. 2 : MEDIAN, FOOTPATH, ISLANDS

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
12	Providing & fixing cement paving blocks flooring having size of 197 x 97 x 60 (mm) of city /quddra / cobble shape with natural colours , having strength b/w 5000 PSI to 8500 PSI i/c filling the joints with hill sand and laying in specified manner/ pattern and design etc complete. *(CSR 2012, General, Vol-iii, Part I, Chap. 8, Pg 49, Serial 71)*	Sq.m	2,480	2,149.53	429.91	2,579.44	6,397,01
13	Cement concrete plain Class B including placing compacting, finishing and curing, comlete (including screening and washing at stone aggregate i/c shuttering.(for Edge Block) *(NHA CSR 2022, Karachi East, Serial 401b)*	Cu.m	21	11,073.55			232,54
14	Dismantling of Structures & Obstructions *(NHA CSR 2022, Karachi East, Serial 510)*	Cu.m	74	1,969.13			145,71
15	Providing & fixing Precast Edge Block (Kerb Block) 3750 PSI Industrial Made Size 6 inches thick x 12 inches long x 18 inches high including the cost of Cartage, excavation, form Work for haunching, 1450 PSI lean concrete, 2250 PSI concrete for haunching, 1:4 cement sand mortor. *(NHA CSR 2022, Karachi East, Serial 601di)*	M	766	1,529.83			1,171,85
16	Providing and laying fairfaced reinforced cement concrete new jersey barrier having 3000 PSI compressive cylindrical strength Concrete (Ready mixed concrete) (area 0.261 Sq.M) as per drawing including the cost of excavation, formwork, lean concrete 1450 PSI compressive cylindrical strength etc. complete in all respect. (excluding the cost steel reinforcement). *(NHA CSR 2022, Karachi East, Serial 601diii)*	M	50	12,811.31			640,566
TOTAL BILL NO. 2 : MEDIAN, FOOTPATH, ISLANDS							**8,587,688**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT LIAQUATABAD 10 NUMBER

COST ESTIMATES

BILL NO. 3 : ANCILLARY WORKS

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
17	Traffic Road Sign						
a	Traffic Sign Cat 1i (equilateral Triangle) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 ai)*	Each	15	21,453.30			321,80
b	Traffic Sign Cat 2i (Circular) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 bi)*	Each	10	27,000.89			270,00
c	Traffic Sign Cat 3Ai (Rectangular) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 ci)*	Each	5	34,076.09			170,38
d	Traffic Road Sign Category 3c (Up To 3 Sq.M) Sign Board In High Intensity Reflective Sheet Laminated on 1.8 Mm Thick G.I Sheet With G.I Pipe Dia 4" and Thickness 8 Guage *(NHA CSR 2022, Karachi East, Serial 607 ei)*	Sq.m	20	51,862.13			1,037,24
18	Pavement Marking In Reflective TP Paint for Lines of 15 cm Width *(NHA CSR 2022, Karachi East, Serial 608 h2)*						
	1) Yellow Color	M	1,320	183.46			242,16
	2) White Colour	M	587	183.46			107,69
	3) Chevron	Sq.m	60	1,223.10			73,38
	4) Zebra Crossing	Sq.m	262	1,223.10			320,45
19	Pavement Marking In Reflective TP. Paint for 4 M Arrows *(NHA CSR 2022, Karachi East, Serial 608 j2)*	Each	25	1,947.48			48,687
20	Reflectorized Plastic Pavement Stud (Raised Profile Type - Double) 100 Mm X100 Mm *(NHA CSR 2022, Karachi East, Serial 609 di)*	Each	484	430.75			208,483
21	Sodding (Incl 2 Months Maintenance) Ploughing Dacca grass with manure as per approved gradient in/c watering and maintaining for two months complete.(exculding the cost of sweet earth). *(NHA CSR 2022, Karachi East, Serial 613 b)*	Sq.m	100	169.44			16,944
SP-31	Raising of Main Hole to Req. Level Up To Max 25 Cm	Each	10	13,227.00			132,270
SP-613d	Filling watering & ramming sweet earth excavated form outside i/c all lead and lift. (Complete in all respect)	Cu.M	30	1,976.72			59,302
SP-231	Supply of PLC based Pelican Controller (Siemens, Delta, Omron, Mitsubishi),pedestrian and traffic Control etc. programming as per site requirement,operating on 220V-50HZ, All enclosed in weather proof steel Cabinet with Lock & Key arrangements, cable glands, gas kit, 200mm Traffic Light, Poly Carbonate Housing Color Black, LED optical System(IP65 Module-Central Light Source) High Flux with Red, Amber,(IP65 Module-Central Light Source) High Flux with Red, Amber,Green modules with homogenous light distribution, phantom light reduction,color stability, operation voltages 180V-240V (UK, USA, Australia or Italy)visor and Mounting brackets etc. complete in all respects. Installation of Pedestrian Light LED, 2 Aspect, 300mm dia, 400 CD, Poly Carbonate,(Person Figure), 220V/ 50 Hz, Supply / Installation of Pedestrian Push Button (Arrow Sign) Single Standard Poles with 15 feet high GI Pipe (ILL/Jamal/Bashir) 4" Dia complete with base plate Stiffeners and junction box Construction of PCC foundation for traffic signal Standard Poles with 1 meter long J-bolt as per drawing. Concrete Base 1:2:4 (1 cement, 2 sand, 4 crushed bujri) Providing, laying, testing, commissioning of multicore PVC insulated flexible PVC sheathed copper conductor cables (new age, fast cable, Pakistan cable, pioneer Cable, BICC (England), Siemens) with wiring of each crossing as per site requirement (1.5mm 4 core), Installation charges for signal poles, traffic lights, controller, excavation for cabling pipe and wire pulling i/c transportation of material, engineers, technician and labor, tools, programming, wiring, testing and commissioning costs complete job in all respects,i/c Sign Board for Pedestrian Crossing, complete in all respects.	Set	12	1,153,620.00			13,843,440
TOTAL BILL NO. 3 : ANCILLARY WORKS							**16,852,254**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT ARTS COUNCIL

SUMMARY OF COSTS

BILL No.	DESCRIPTION	AMOUNT (Rs.)
	Part A	
1	CARRIAGEWAY	17,758,215
2	MEDIAN, FOOTPATH, ISLANDS	6,027,519
3	ANCILLARY WORKS	2,745,405
	SUB- TOTAL (A) - CONSTRUCTION COST	**26,531,139**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT ARTS COUNCIL

COST ESTIMATES

BILL NO. 1 : CARRIAGEWAY

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
1	Cutting and removing trees within distances of 100 ft: *2012, Highway, Vol-iii, Part vi Mis. Serial 4 a &b)*						
	(a) Upto 2.0ft : Girth.	Each	5	480.98	96.20	577.18	2,886
	(b) 2.50 Ft. to 6.0 Ft. Girth.	Each	3	940.783	188.16	1,128.94	3,387
2	Dismantling of existing asphalt concrete road including base, sub-base and disposal of dismantled materials to designated placed. *2012, Highway, Vol-iii, Part ivi,Mis. Serial 11)*	Cu.M	10	273.45	54.69	328.14	3,281
3	Earth work embamkment from borrow pits including laying in 6" layers, clod breaking ramming dressing complete, lead upto 100 ft: lift upto 5 ft: (In ordinary soil). *2012, Highway, Vol-iii, Part iv, Serial 5)*	Cu.M	25	78.00	15.60	93.60	2,340
4	Earth work compaction by Sheep Foot Roller and Power Roller with optimum moisture content. For 95-100% modified AASHO density. *(CSR 2012, Highway, Vol-iii, Part vi, Serial 7a)*	Sq.M	8,000	140.41	28.08	168.49	1,347,920
5	Dismantling of existing asphalt concrete road including base, sub-base and disposal of dismantled materials to designated placed. *(CSR 2012, Highway, Vol-iii, Part vi, Serial Mis. 11)*	Sq.M	8,000	273.45	54.69	328.14	2,625,120
6	Scarification of Existing Road Pavement *(NHA CSR 2022, Karachi East, Serial 302a)*	Sq.M	8,000	81.35			650,800
7	Granular Subbase *(NHA CSR 2022, Karachi East, Serial 201)*	Cu.M	180	1,909.05			343,629
8	Aggregate Base Course (With Grader) *(NHA CSR 2022, Karachi East, Serial 202 ii)*	Cu.M	320	2,402.88			768,922
9	Applying priming coat or tack coat with approved binder at the required rate cluding cleaning the road surface thoroughly, heating to the required temperature and spraying the binder with pressure as directed etc, complte. *(NHA CSR 2022, Karachi East, Serial 302a)*	Sq.m	8,000	135.78			1,086,240
10	ASPHALTIC BASE COURSE PLANT MIX (CLASS "B") Providing and laying Plant mixed Asphalt Concrete Binder Course compacted thickness 3 inches (75mm thick) as per approved job mix formula using crush aggregate from approved sources. Using asphalt of grade 80/100 during laying temperature not less than 140C compacted by steel wheel & PTR roller. The procedure of laying binder course material & methodology shall fully comply with AASHTO and as directed by Engineer Incharge. Minimum bitumen content should be 3.5% binder course shall be spreading using paver machine.Rolling & Finishing to design proper grade line level and camber etc: (Machinery with POLs cost of material carriage). *(NHA CSR 2022, Karachi East, Serial 203b)*	Cu.M	150	19,053.41			2,858,012
11	2" (50 mm) Thick Asphalt Concrete Wearing Course Plant Mix.Laying to Proper line and grade plant mixed Asphalt concrete paver finished (Hydraulic / Electronic control) Prepared to specified fomula according to job mix formula approved by Engineer incharge including rolling and finishing to Properline, grade level and camber etc: (Machinery with POLs cost of material carriage). *(NHA CSR 2022, Karachi East, Serial 305b)*	Cu.M	400	20,193.93			8,077,572
TOTAL BILL NO. 1 : CARRIAGEWAY							**17,758,215**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT ARTS COUNCIL

COST ESTIMATES

BILL NO. 2 : MEDIAN, FOOTPATH, ISLANDS

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
12	Providing & fixing cement paving blocks flooring having size of 197 x 97 x 60 (mm) of city /quddra / cobble shape with natural colours , having strength b/w 5000 PSI to 8500 PSI i/c filling the joints with hill sand and laying in specified manner/ pattern and design etc complete. *(CSR 2012, General, Vol-iii, Part I, Chap. 8, Pg 49, Serial 71)*	Sq.m	1,450	2,149.53	429.91	2,579.44	3,740,188
13	Cement concrete plain Class B including placing compacting, finishing and curing, comlete (including screening and washing at stone aggregate i/c shuttering.(for Edge Block) *(NHA CSR 2022, Karachi East, Serial 401b)*	Cu.m	23	11,073.55			254,692
14	Dismantling of Structures & Obstructions *(NHA CSR 2022, Karachi East, Serial 510)*	Cu.m	66	1,969.13			129,963
15	Providing & fixing Precast Edge Block (Kerb Block) 3750 PSI Industrial Made Size 6 inches thick x 12 inches long x 18 inches high including the cost of Cartage, excavation, form Work for haunching, 1450 PSI lean concrete, 2250 PSI concrete for haunching, 1:4 cement sand mortor. *(NHA CSR 2022, Karachi East, Serial 601di)*	M	825	1,529.83			1,262,110
16	Providing and laying fairfaced reinforced cement concrete new jersey barrier having 3000 PSI compressive cylindrical strength Concrete (Ready mixed concrete) (area 0.261 Sq.M) as per drawing including the cost of excavation, formwork, lean concrete 1450 PSI compressive cylindrical strength etc. complete in all respect. (excluding the cost steel reinforcement). *(NHA CSR 2022, Karachi East, Serial 601diii)*	M	50	12,811.31			640,566
TOTAL BILL NO. 2 : MEDIAN, FOOTPATH, ISLANDS							**6,027,519**

UPGRADATION OF 4 JUNCTIONS AS PER INTERNATIONAL STANDARDS AT ARTS COUNCIL

COST ESTIMATES

BILL NO. 3 : ANCILLARY WORKS

Pay Item No.	Item Description	Unit	Estimated Quantity	Basic Rate (Rs.)	Premium @ 20%	Applied Rate (Rs.)	Amount (Rs.)
17	Traffic Road Sign						
a	Traffic Sign Cat 1i (equilateral Triangle) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 ai)*	Each	10	21,453.30			214,53
b	Traffic Sign Cat 2i (Circular) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 bi)*	Each	6	27,000.89			162,00
c	Traffic Sign Cat 3Ai (Rectangular) 90 cm Sign Board In High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet With G.I Pipe Dia 3" and Thickness 8 Guage. *(NHA CSR 2022, Karachi East, Serial 607 ci)*	Each	4	34,076.09			136,30
d	Traffic Road Sign Category 3c (Up To 3 Sq.M) Sign Board In High Intensity Reflective Sheet Laminated on 1.8 Mm Thick G.I Sheet With G.I Pipe Dia 4" and Thickness 8 Guage *(NHA CSR 2022, Karachi East, Serial 607 ei)*	Sq.m	15	51,862.13			777,93
18	Pavement Marking In Reflective TP Paint for Lines of 15 cm Width *(NHA CSR 2022, Karachi East, Serial 608 h2)*						
	1) Yellow Color	M	1,200	183.46			220,15
	2) White Colour	M	800	183.46			146,76
	3) Chevron	Sq.m	100	1,223.10			122,31
	4) Zebra Crossing	Sq.m	284	1,223.10			347,36
19	Pavement Marking In Reflective TP. Paint for 4 M Arrows *(NHA CSR 2022, Karachi East, Serial 608 j2)*	Each	50	1,947.48			97,37
20	Reflectorized Plastic Pavement Stud (Raised Profile Type - Double) 100 Mm X100 Mm *(NHA CSR 2022, Karachi East, Serial 609 di)*	Each	587	430.75			252,85
21	Sodding (Incl 2 Months Maintenance) Ploughing Dacca grass with manure as per approved gradient in/c watering and maintaining for two months complete.(exculding the cost of sweet earth). *(NHA CSR 2022, Karachi East, Serial 613 b)*	Sq.m	100	169.44			16,944
SP-31	Raising of Main Hole to Req. Level Up To Max 25 Cm	Each	10	13,227.00			132,270
SP-613d	Filling watering & ramming sweet earth excavated form outside i/c all lead and lift. (Complete in all respect)	Cu.M	60	1,976.72			118,603
SP-231	Supply of PLC based Pelican Controller (Siemens, Delta, Omron, Mitsubishi),pedestrian and traffic Control etc. programming as per site requirement,operating on 220V-50HZ, All enclosed in weather proof steel Cabinet with Lock & Key arrangements, cable glands, gas kit, 200mm Traffic Light, Poly Carbonate Housing Color Black, LED optical System(IP65 Module-Central Light Source) High Flux with Red, Amber,(IP65 Module-Central Light Source) High Flux with Red, Amber,Green modules with homogenous light distribution, phantom light reduction,color stability, operation voltages 180V-240V (UK, USA, Australia or Italy)visor and Mounting brackets etc. complete in all respects. Installation of Pedestrian Light LED, 2 Aspect, 300mm dia, 400 CD, Poly Carbonate,(Person Figure), 220V/ 50 Hz, Supply / Installation of Pedestrian Push Button (Arrow Sign) Single Standard Poles with 15 feet high GI Pipe (ILL/Jamal/Bashir) 4" Dia complete with base plate Stiffeners and junction box Construction of PCC foundation for traffic signal Standard Poles with 1 meter long J-bolt as per drawing. Concrete Base 1:2:4 (1 cement, 2 sand, 4 crushed bujri) Providing, laying, testing, commissioning of multicore PVC insulated flexible PVC sheathed copper conductor cables (new age, fast cable, Pakistan cable, pioneer Cable, BICC (England), Siemens) with wiring of each crossing as per site requirement (1.5mm 4 core), Installation charges for signal poles, traffic lights, controller, excavation for cabling pipe and wire pulling i/c transportation of material, engineers, technician and labor, tools, programming, wiring, testing and commissioning costs complete job in all respects,i/c Sign Board for Pedestrian Crossing, complete in all respects.	Set	0	1,153,620.00			-
TOTAL BILL NO. 3 : ANCILLARY WORKS							**2,745,405**

Annexure-C

IMPLEMENTATION

SCHEDULE

IMPLEMENTATION SCHEDULE (Physical Activities)

Sr. No.	ITEMS OF WORKS	Quarter						
		Q2	Q3	Q4	Q5	Q6	Q7	Q8
1	Earthworks	■■■■■■■■■	■■■■■■■■■■					
2	Utilities Works	■■■■■■	■■■■■■■■■■					
3	Pavement Works		■■■■■■■■■	■■■■■■■■■■				
4	Foot Path, Median and Island		■■■■	■■■■■■■■■■	■■■■■■■■			
5	Pavement Markings and Traffic signs			■■■■■■■■■	■■■■■■■■■■	■■■■■		
6	Traffic Signals and ITS			■■■■	■■■■■■■■■■	■■■■■■■■■■		